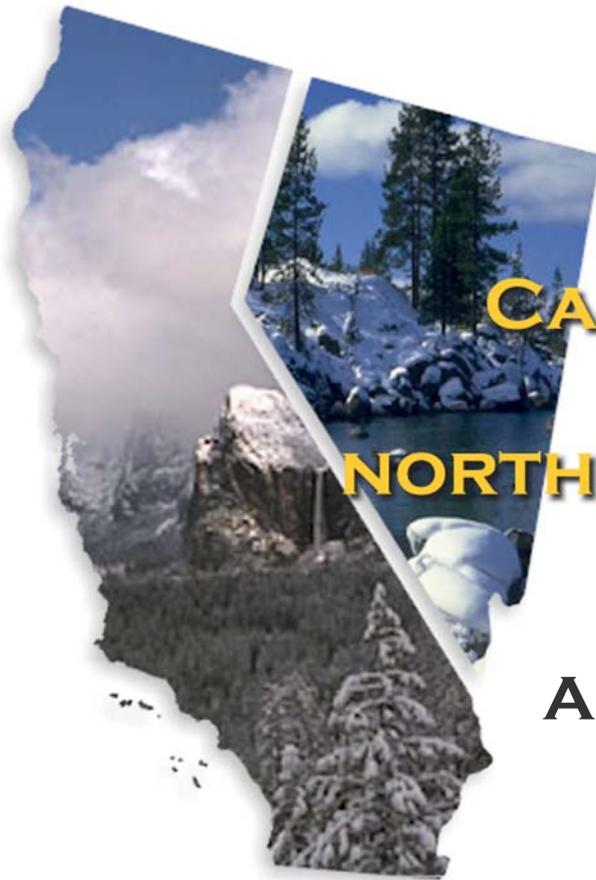


WATER SUPPLY OUTLOOK



CALIFORNIA AND NORTHERN NEVADA

APRIL 2004



CALIFORNIA NEVADA RIVER FORECAST CENTER
NOAA NATIONAL WEATHER SERVICE
SACRAMENTO, CALIFORNIA

DEFINITIONS:

Acre-Feet: The volume equal to one acre covered one foot deep (43,560 cubic feet).

Forecast Period: Generally, April 1st through July 31st, unless otherwise noted.

April-High Forecast Period: For the Lake Tahoe Stage Rise, the period from April 1st to the highest recorded lake stage level.

April 1st Average: The April 1st snowpack average is used as a reference point because it is normally the end of the winter snowfall season and the beginning of the spring runoff season.

Residual Period: The forecast period from the first of the current month through September 30th.

Probability Forecasts: Precipitation and snowfall accumulation of known probability as determined by analysis of past records are utilized in the preparation of probability runoff forecasts. The forecasts include an evaluation of the standard error of the prediction model. The forecasts are presented at three levels of probability as follows:

- **Most Probable Volume:** Given the current hydrometeorological conditions to date, this is the best estimate of what the actual runoff volume will be this season.
- **Most Probable Volume (% Normal):** Most probable volume in percent of the 1961-1990 average.
- **Reasonable Maximum Volume:** Given current hydrometeorological conditions, the seasonal runoff that has a 10 percent chance of being exceeded.
- **Reasonable Minimum Volume:** Given current hydrometeorological conditions, the seasonal runoff that has a 90 percent chance of being exceeded.

SNOTEL: Acronym for SNOw TELelemetry. This is a automated snow measurement system operated by the USDA - Natural Resources Conservation Service. These sites use meteor burst communications technology to transmit hydrometeorological information such as snow water equivalent from snow pillows, accumulated precipitation and maximum, minimum and average air temperature.

Water equivalent: The depth of water that would result from melting the snowpack at a point.

Water Year: The period from October 1st through September 30th.

General Outlook

April 1, 2004

Hopes for a continued improvement of this year's water supply picture decreased during March. Most of the month was dominated by warm, dry weather resulting in a moderate decrease of the average snow pack percentages. This has brought a reduction of the April-July forecasts from last month. Much below average precipitation was recorded in all water supply forecast basins. Rainfall ranged from 39 percent of the March average for the Trinity basin to 19 percent for the Kern. The upper Klamath basin received 42 percent of the monthly average, the Truckee 37 percent, the Carson 32, and the Walker 25. Only 34 percent of the March average fell in the Humboldt basin.

There was significant melt to the Sierra snow pack due to the warm conditions. The April 1st average ranges from 104 percent for the northern Sierra, 78 percent in the central, and 71 percent in the southern Sierra. The Carson-Walker snow pack stands at 85 percent, the Tahoe-Truckee at 78, and the Humboldt at 68 percent. The snow pack in the upper Klamath basin is at 103 percent of the average-to-date.

March runoff ranged from 107 percent for the San Joaquin basin to 87 percent for the Trinity-Sacramento. Runoff for the east-side Sierra was about 127 percent of the monthly average. It was 72 percent of the March average for the upper Klamath Lake basin and 53 percent for the Humboldt River at Palisade.

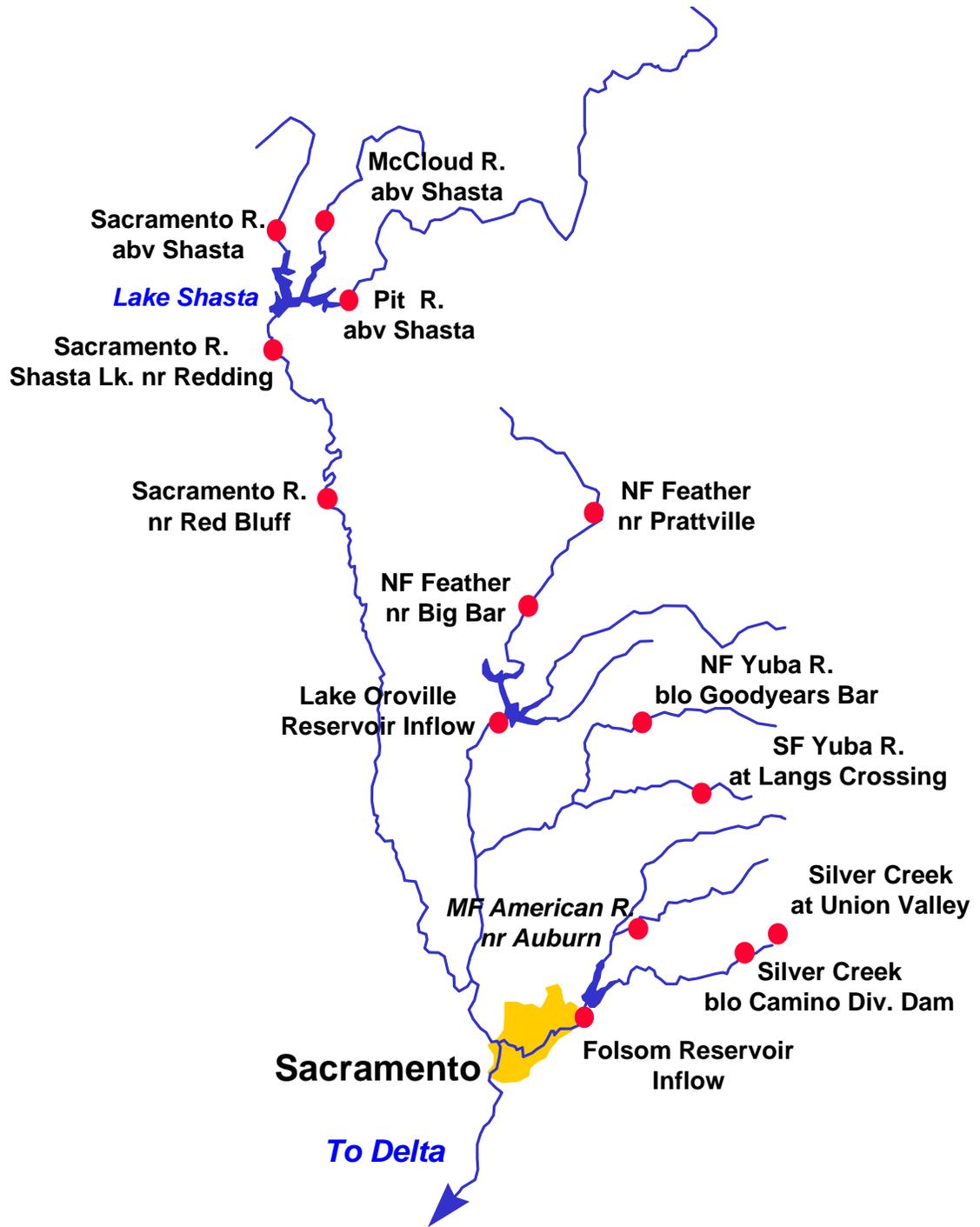
Reservoir storage remains excellent in the Sacramento and San Joaquin basins at 103 percent and 107 percent of the average-to-date, respectively. Tulare Lake basin reservoirs are at 77 percent. East-side Sierra reservoirs were at 84 percent of average and Lake Tahoe stands at 28 percent. Storage at Rye Patch Reservoir in Nevada is only 25 percent of the average-to-date; Lahontan Reservoir stands at 97 percent.

April through July runoff forecasts are below average except for basins in the upper Sacramento basin where snow pack conditions are the best. The April through July runoff forecasts range from 45 percent for the Tule River at Success to 110 percent for the Trinity Lake inflow. Forecasts vary from 62 to 87 percent for the east-side Sierra basins. The Humboldt basin in northern Nevada faces another dismal year with forecasts ranging from 49 to 65 percent. The March through September forecast for the upper Klamath River inflow is 79 percent.

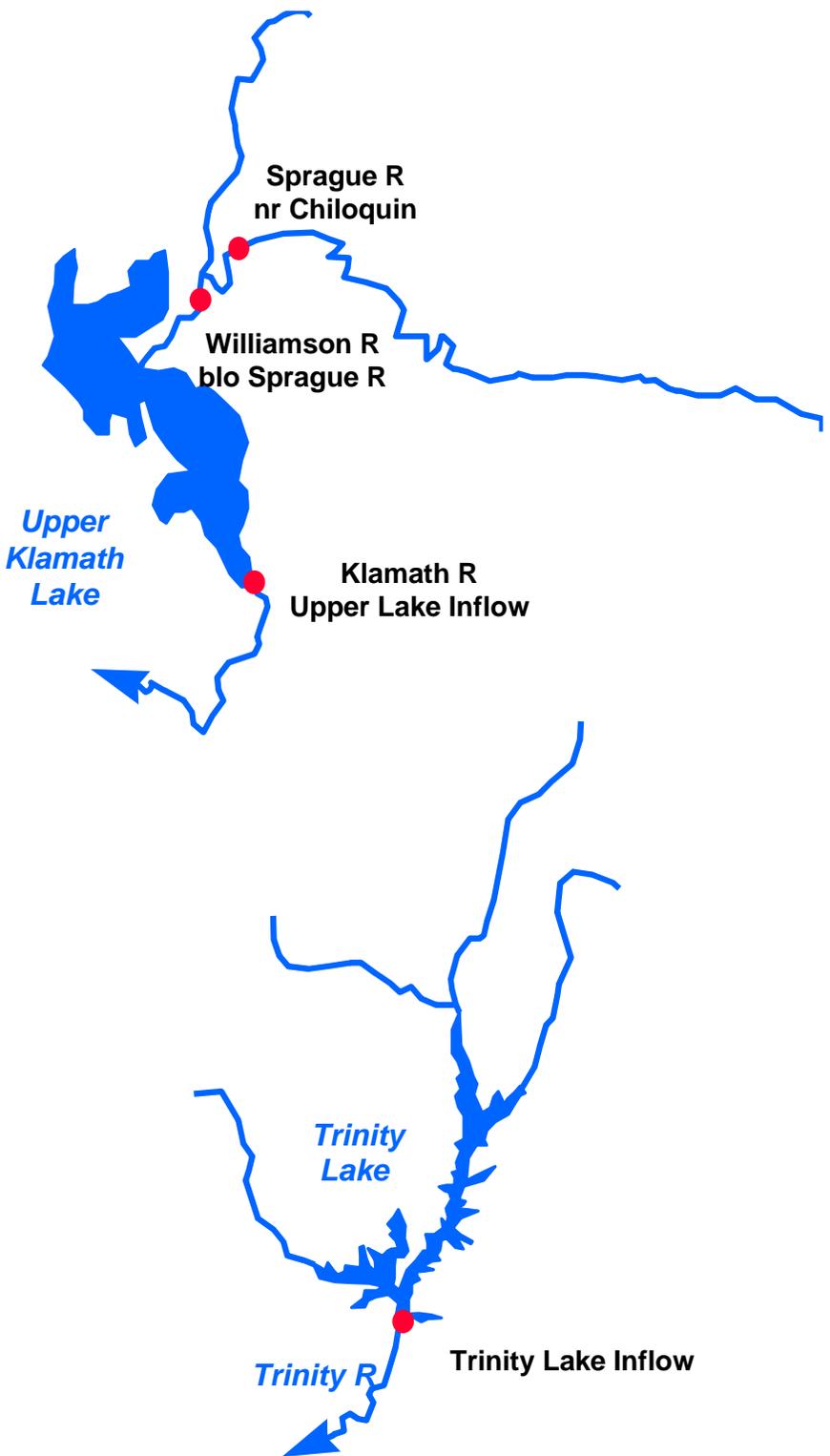
The Water Supply Outlook is available in pdf format on the World Wide Web at:

<http://www.wrh.noaa.gov/cnrfc>

Sacramento River Basin



Upper Klamath and Trinity River Basins



Water Supply Forecasts

		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
COASTAL BASINS						
Williamson River Sprague, blo	Mar-Sep	395	78	505	290	505
Sprague River Chiloquin, nr	Mar-Sep	225	74	320	132	305
Upper Klamath Falls River Inflow	Mar-Sep	565	79	720	410	715
Lost River Gerber Reservoir Inflow	Apr-Jul	8.0	47	12.5	3.3	16.9
Clear Lake Reservoir Inflow	Apr-Jul	25	61	39	11.0	41
Trinity River Trinity Lake Inflow	Apr-Jul	700	110	880	550	635

Trinity River - Inflow at Lewiston Lake Distribution (kAF) Exceedence

Probability	Oct-Mar	Apr	May	Jun	Jul	Aug	Sep	Total	Pct/Avg
50%	855	250	270	140	40	15	10	1580	113
90%	855	200	220	100	30	10	5	1420	102
10%	855	310	330	190	50	20	15	1770	127

SACRAMENTO RIVER BASIN

SACRAMENTO RIVER ABOVE BEND BRIDGE

Pit River Montgomery Ck, nr	Apr-Jul	910	85	1070	750	1070
Mccloud River Shasta Lk, abv	Apr-Jul	380	103	480	260	370
Sacramento River Delta	Apr-Jul	295	102	425	164	290
Shasta Lake, Redding, nr	Apr-Jul	1700	95	2250	1150	1790
Bend Bridge, abv, Red Bluff, nr	Apr-Jul	2290	94	3120	1460	2440

FEATHER RIVER ABOVE OROVILLE RESERVOIR

NF Feather River Prattville, nr	Apr-Jul	290	87	395	183	333*
Big Bar	Apr-Jul	820	85	1160	480	962*
Feather River Oroville Reservoir Inflow	Apr-Jul	1530	87	2090	970	1760

Water Supply Forecasts

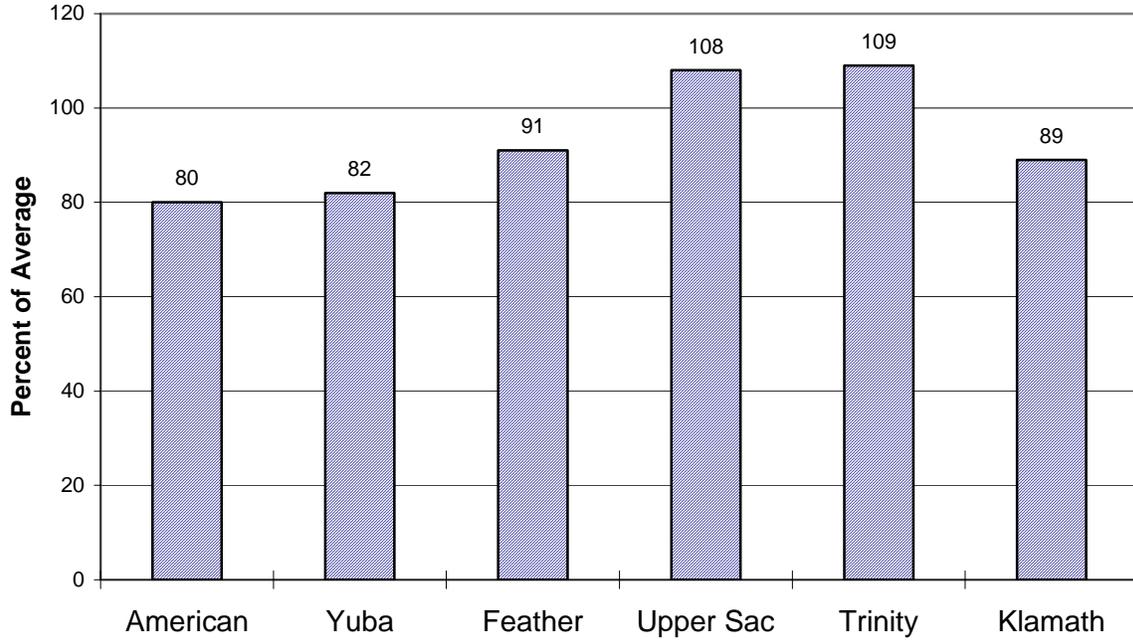
		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
YUBA RIVER ABOVE SMARTVILLE						
North Yuba River						
Goodyears Bar, blo	Apr-Jul	220	81	285	152	273*
South Yuba River						
Langs Crossing	Apr-Jul	175	78	240	111	225*
Yuba River						
Smartville, nr	Apr-Jul	800	80	1050	535	995
AMERICAN RIVER ABOVE FOLSOM RESERVOIR						
MF American River						
Auburn, nr	Apr-Jul	380	78	535	225	490*
Silver Ck						
Union Valley	Apr-Jul	74	76	100	48	98*
Camino Dam, blo	Apr-Jul	115	73	158	72	158*
American River						
Folsom Reservoir Inflow	Apr-Jul	930	76	1340	535	1230

***30 Year Averages for 1971-2000 are incomplete. Those forecast points with an asterisk have incomplete averages, so 1961-1990 averages are listed. The new averages will be incorporated into this report when the complete data sets become available.**

Sacramento/Trinity/Klamath River Basins

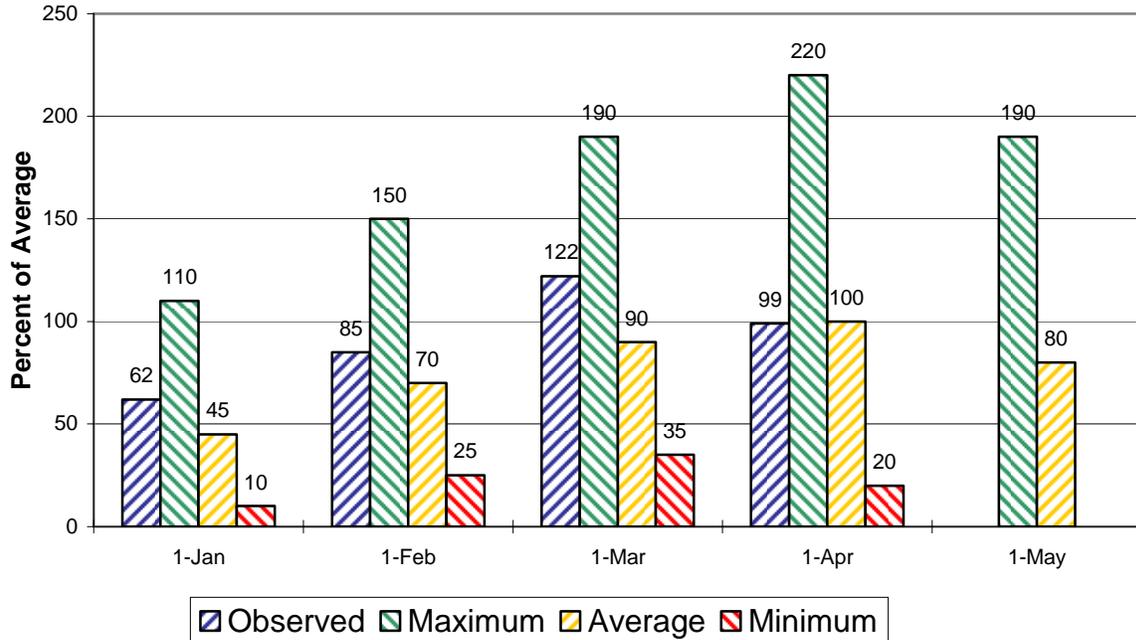
Seasonal Basin Precipitation

October 1 to Date



Seasonal Basin Snowpack

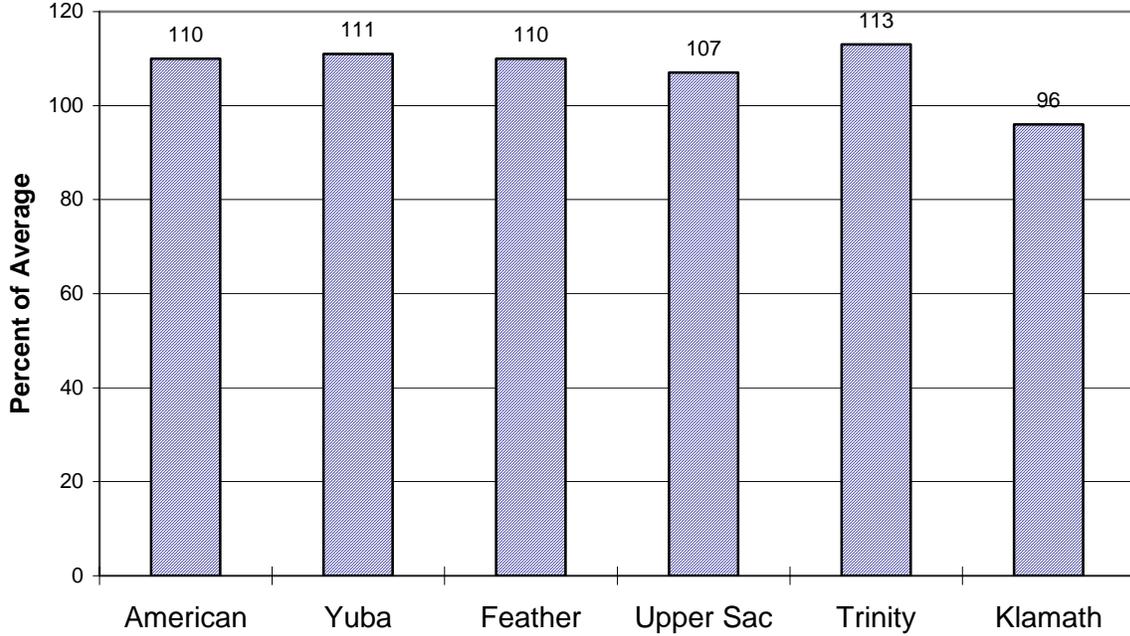
Water Content in % of April 1 Average



Sacramento/Trinity/Klamath River Basins

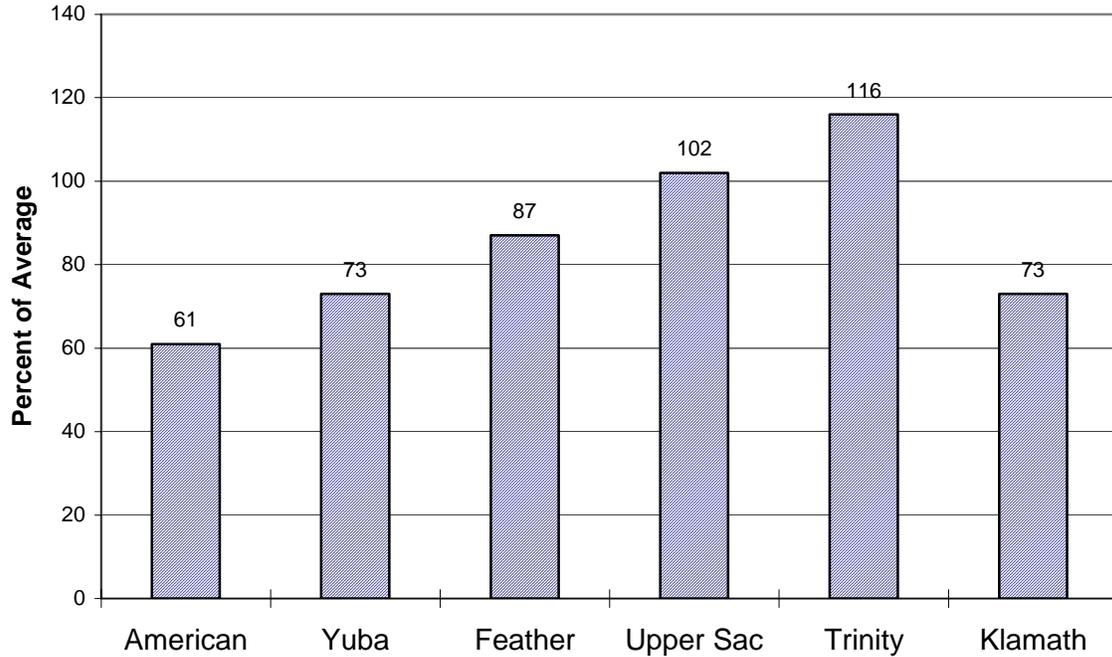
Basin Reservoir Storage

Contents of Major Reservoirs in % of Average



Seasonal Basin Runoff

October 1 to Date



San Joaquin Basin



Water Supply Forecasts

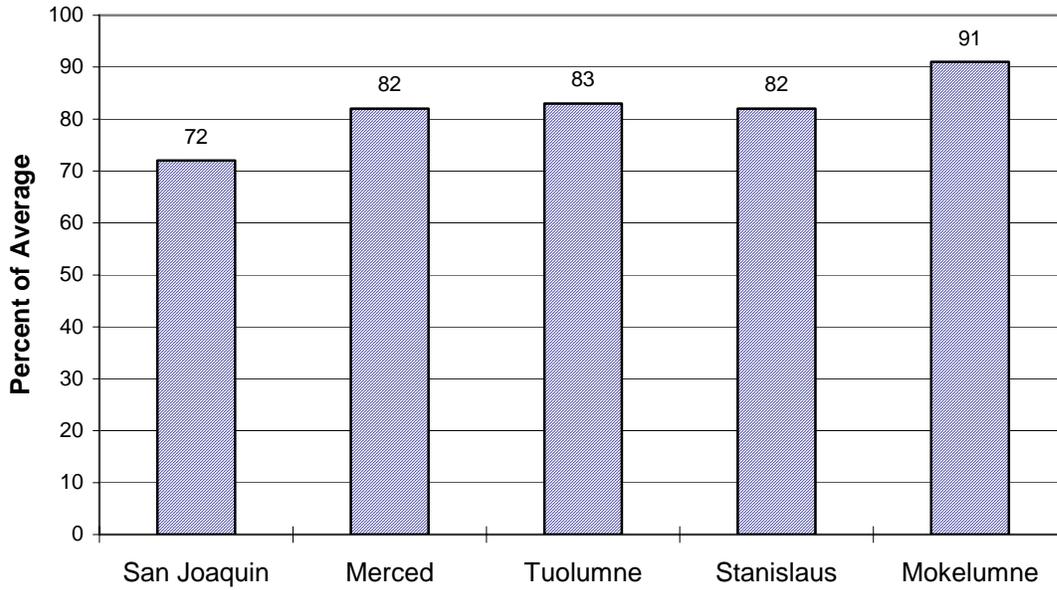
		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
<hr/>						
SF San Joaquin River						
Hooper Ck, blo, Florence Lk, nr	Apr-Jul	150	78	210	90	192*
San Joaquin River						
Millerton Lk	Apr-Jul	920	72	1140	705	1270
Merced River						
Pohono Bridge, at, Yosemite, nr	Apr-Jul	290	81	450	175	360*
Merced Falls, blo	Apr-Jul	470	73	700	275	645
Tuolumne River						
Hetch Hetchy, nr	Apr-Jul	510	86	700	320	596*
La Grange, nr	Apr-Jul	960	78	1350	600	1230
MF Stanislaus River						
Beardsley Dam, blo	Apr-Jul	270	84	380	165	320*
Stanislaus River						
Goodwin Dam, blo, Knights Ferry	Apr-Jul	540	78	740	320	695
NF Mokelumne River						
West Point	Apr-Jul	320	77	450	210	416*
Mokelumne River						
Mokelumne Hill	Apr-Jul	340	74	475	225	460
Cosumnes River						
Michigan Bar	Apr-Jul	70	57	110	40	123

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San Joaquin Basin

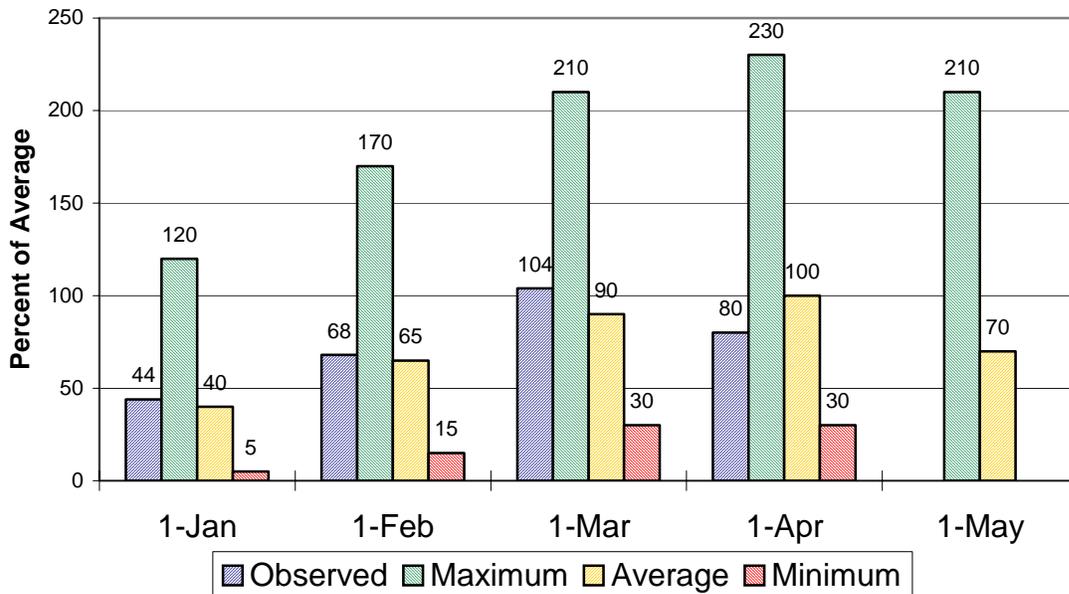
Seasonal Basin Precipitation

October 1 to Date



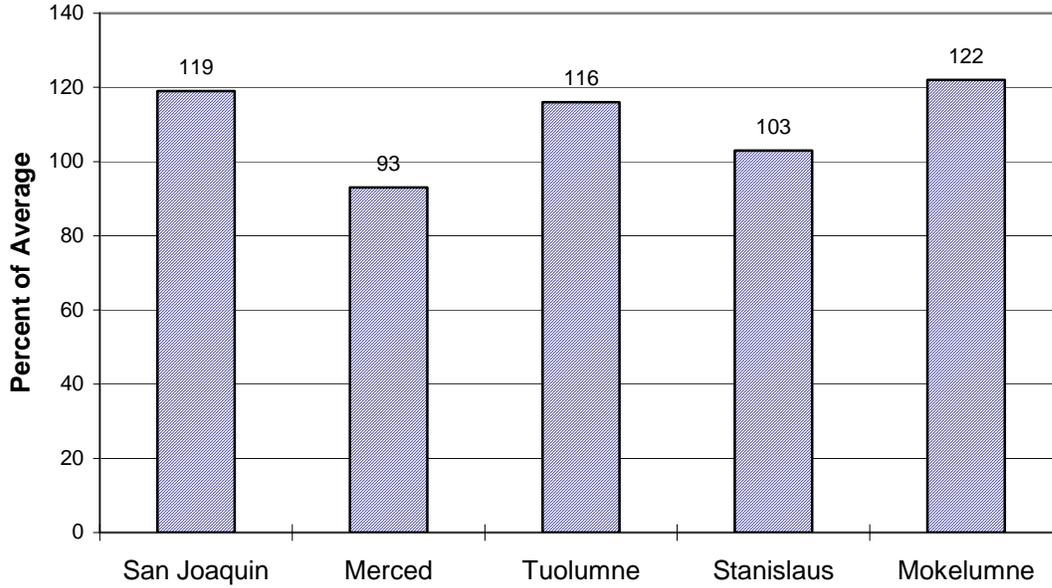
Seasonal Basin Snowpack

Water Content in % of April 1 Average

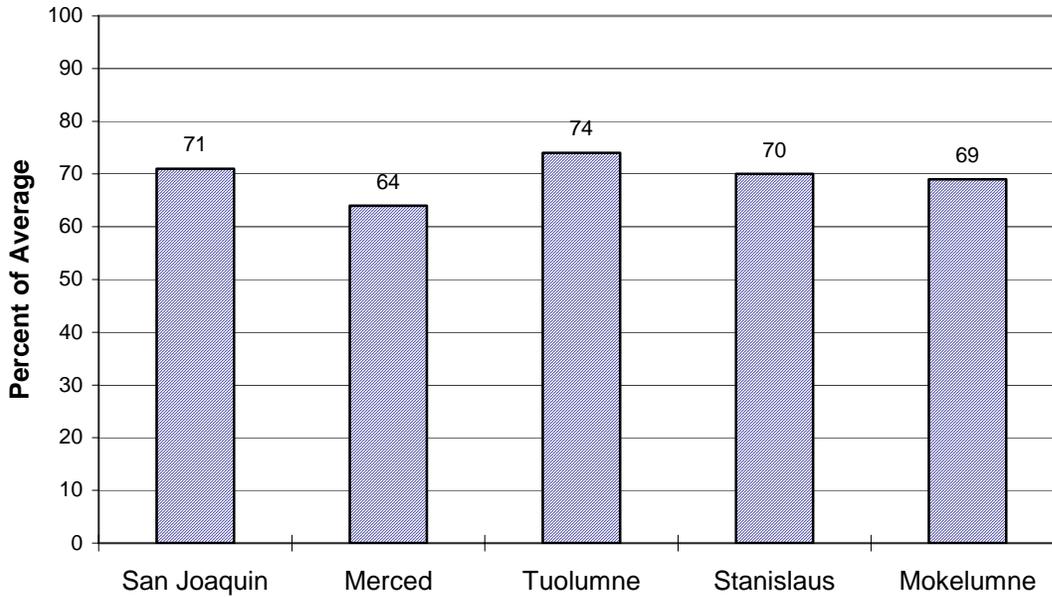


San Joaquin Basin

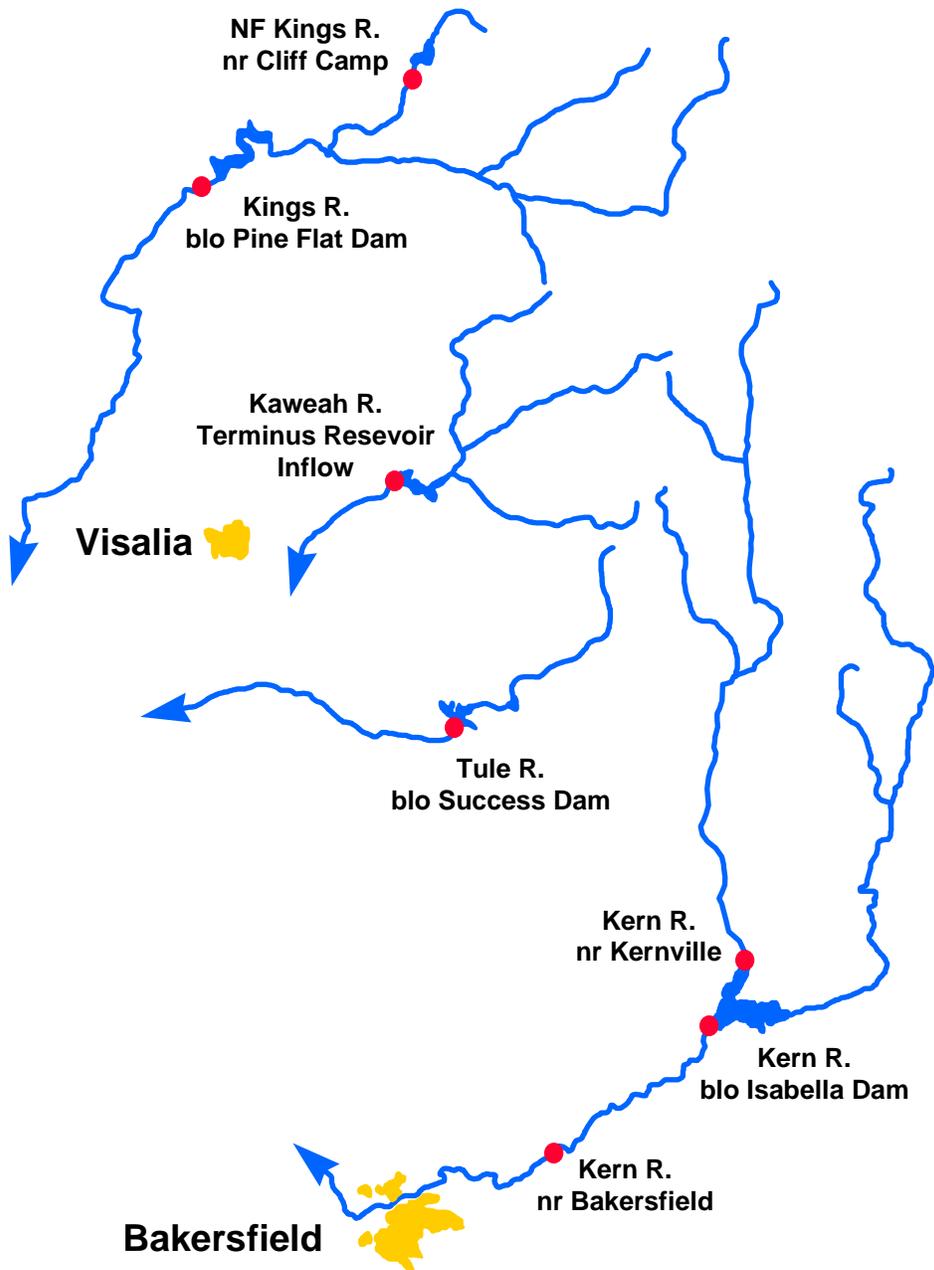
Basin Reservoir Storage Contents of Major Reservoirs in % of Average



Season Basin Runoff October 1 to Date



Tulare Basin

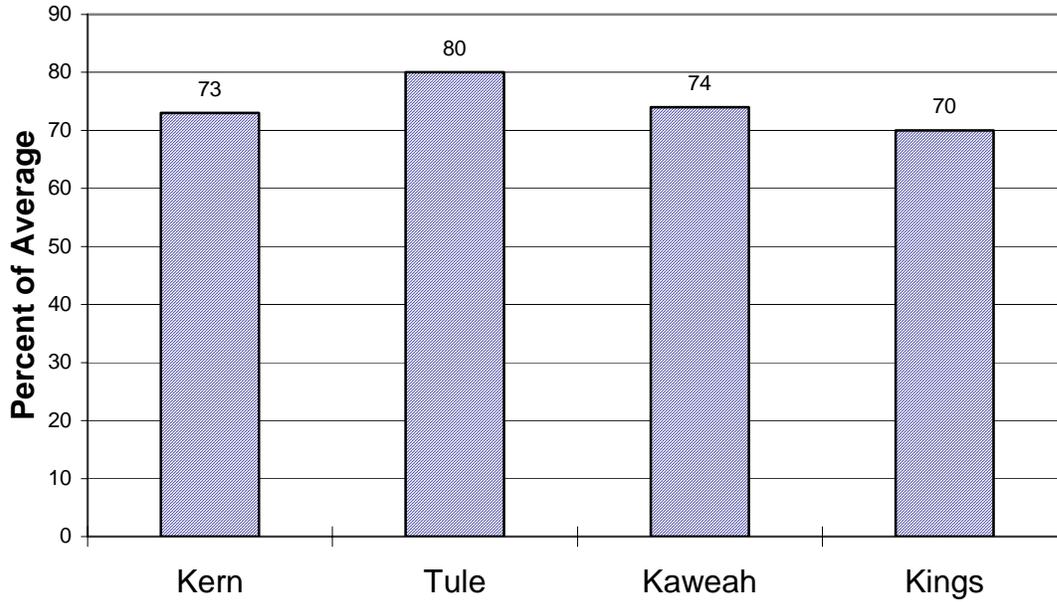


Water Supply Forecasts

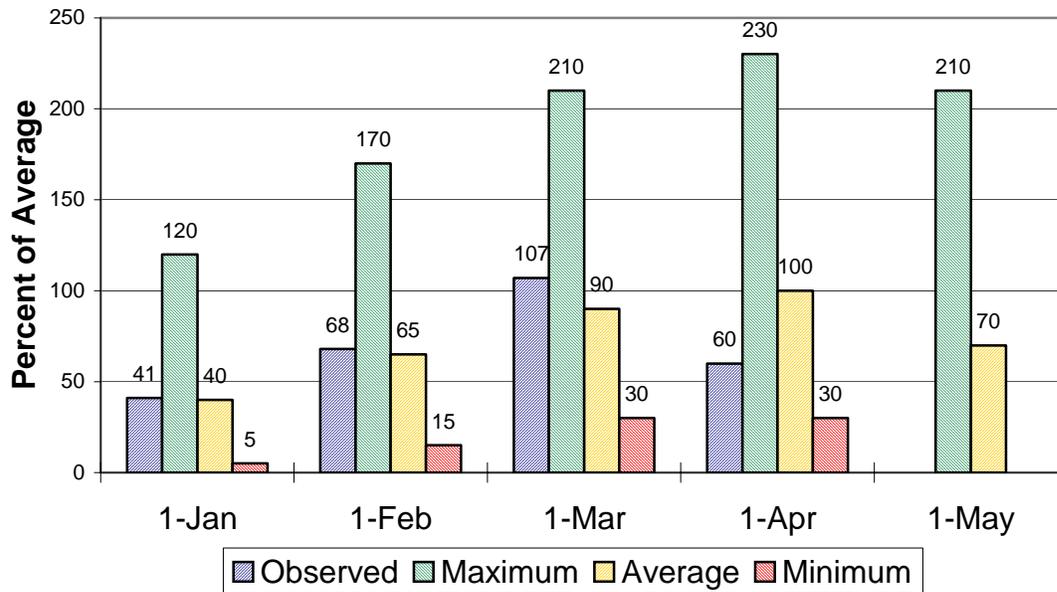
		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
Kern River						
Kernville, nr	Apr-Jul	245	62	340	150	398*
Isabella Dam, blo	Apr-Jul	280	58	390	170	480
Bakersfield, nr	Apr-Jul	290	59	405	175	490
Tule River						
Success Dam	Apr-Jul	30	45	42	18.0	66
Kaweah River						
Terminus Dam	Apr-Jul	190	66	275	115	290
NF Kings River						
Cliff Camp, nr	Apr-Jul	160	67	205	95	240*
Kings River						
Pine Flat Dam, blo	Apr-Jul	870	70	1100	550	1250

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Tulare Lake Basin Seasonal Precipitation October 1 to Date



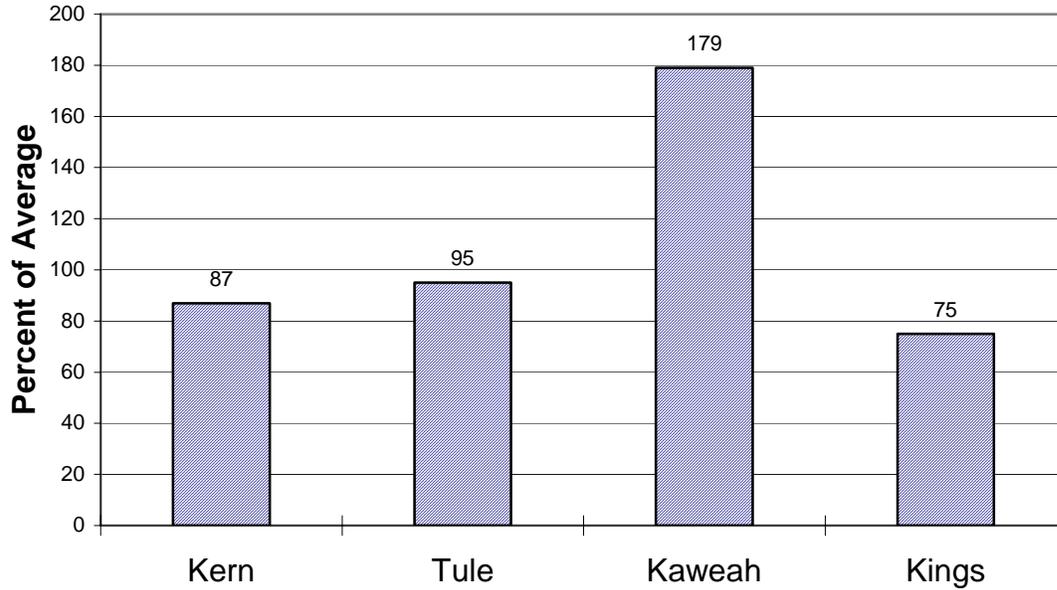
Seasonal Basin Snowpack Water Content in % of April 1 Average



Tulare Lake Basin

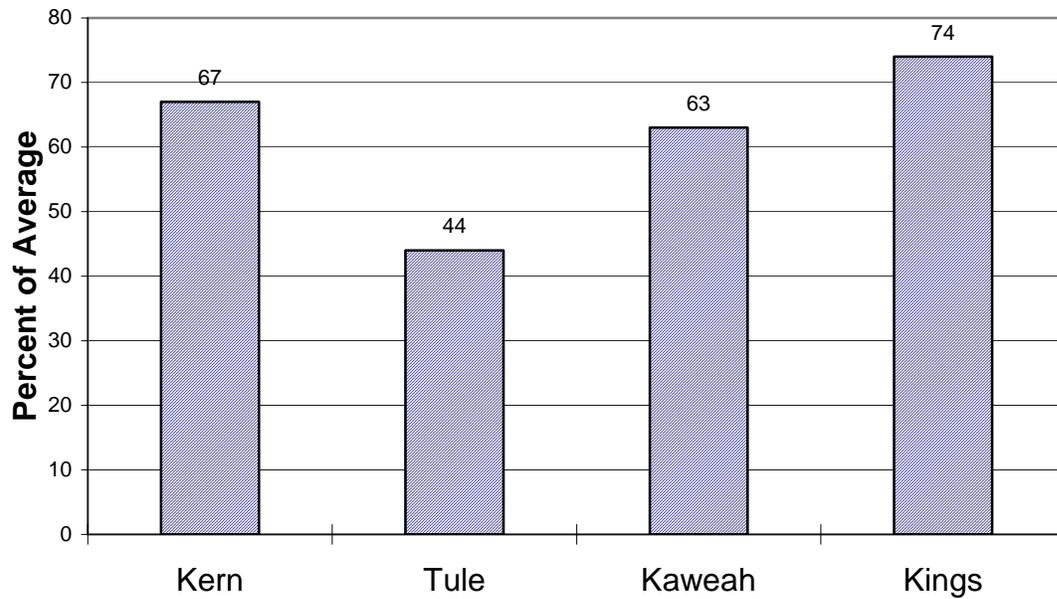
Basin Reservoir Storage

Contents of Major Reservoirs in % of Average

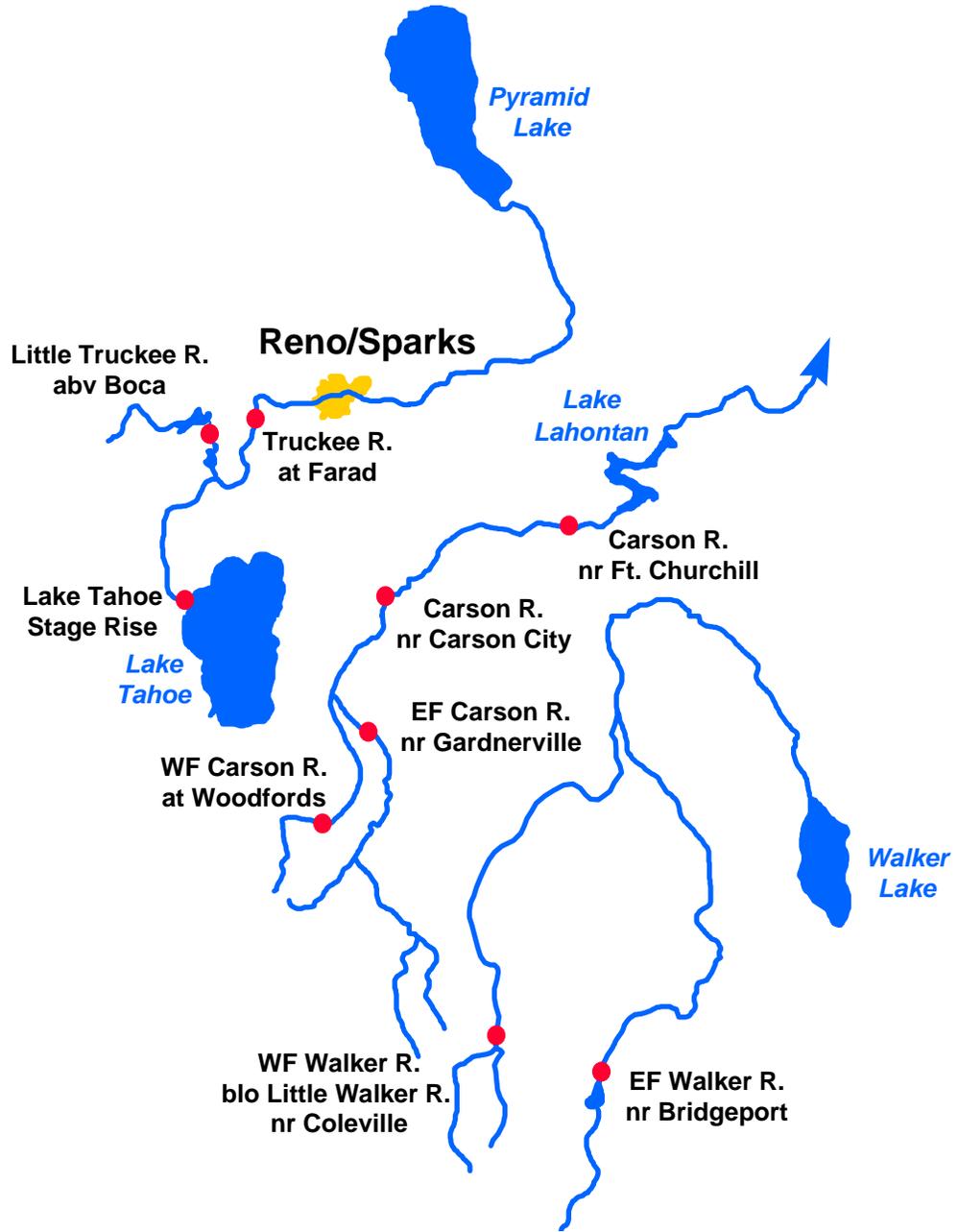


Seasonal Basin Runoff

October 1 to Date



East Side Sierra Nevada Basins



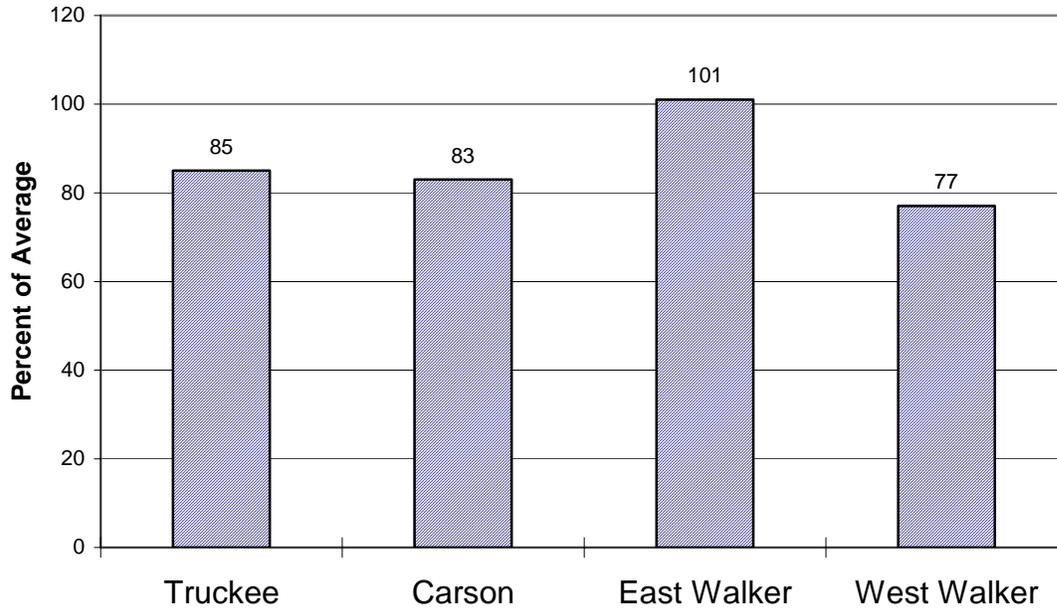
Water Supply Forecasts

		Most Prob Vol KAF	Most Prob Vol %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
Truckee River						
Truckee River						
Lake Tahoe Stage Rise	Apr-High	1.00	72	1.37	0.63	1.38
Ltl Truckee River						
Boca Res, abv, Truckee, nr	Apr-Jul	56	70	69	43	80
Truckee River						
Farad	Apr-Jul	190	73	260	122	260
Carson River						
EF Carson River						
Gardnerville, nr	Apr-Jul	135	71	160	110	189
WF Carson River						
Woodfords	Apr-Jul	40	71	49	31	56
Carson River						
Carson City, nr	Apr-Jul	120	64	163	77	188
Fort Churchill, nr	Apr-Jul	110	62	157	63	178
Walker River						
East Walker River						
Bridgeport, nr	Apr-Aug	50	75	70	30	67
West Walker River						
Ltl Walker, blo, Coleville, nr	Apr-Jul	135	87	151	119	156

East Side Sierra Nevada Basins

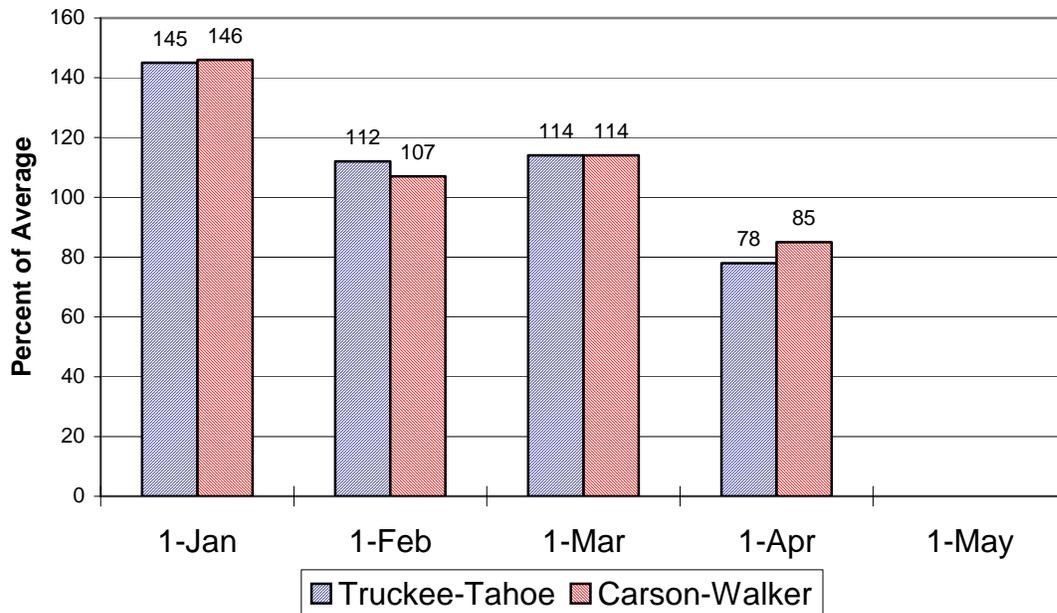
Seasonal Basin Precipitation

October 1 to Date



Basin Snowpack

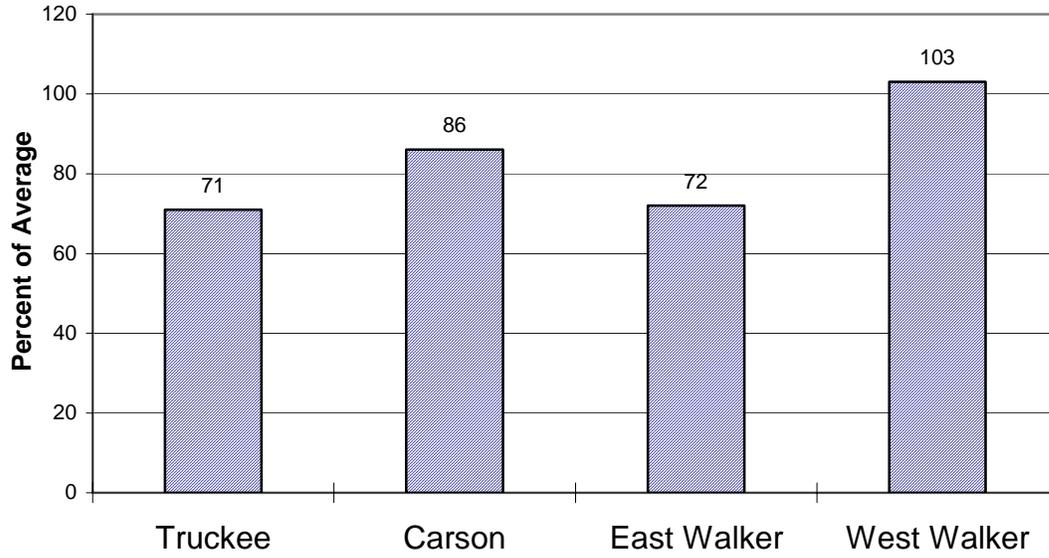
% of Average SWE to Date



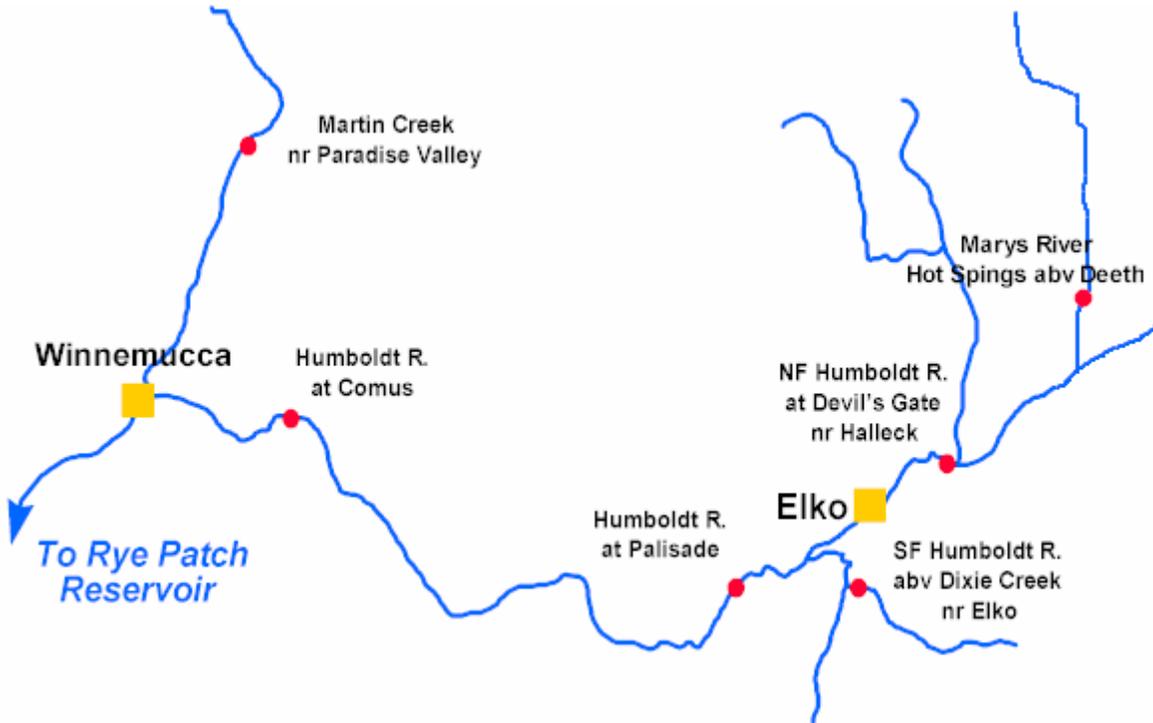
East Side Sierra Nevada Basins

Seasonal Basin Runoff

October 1 to Date



Humboldt River Basin



Water Supply Forecasts

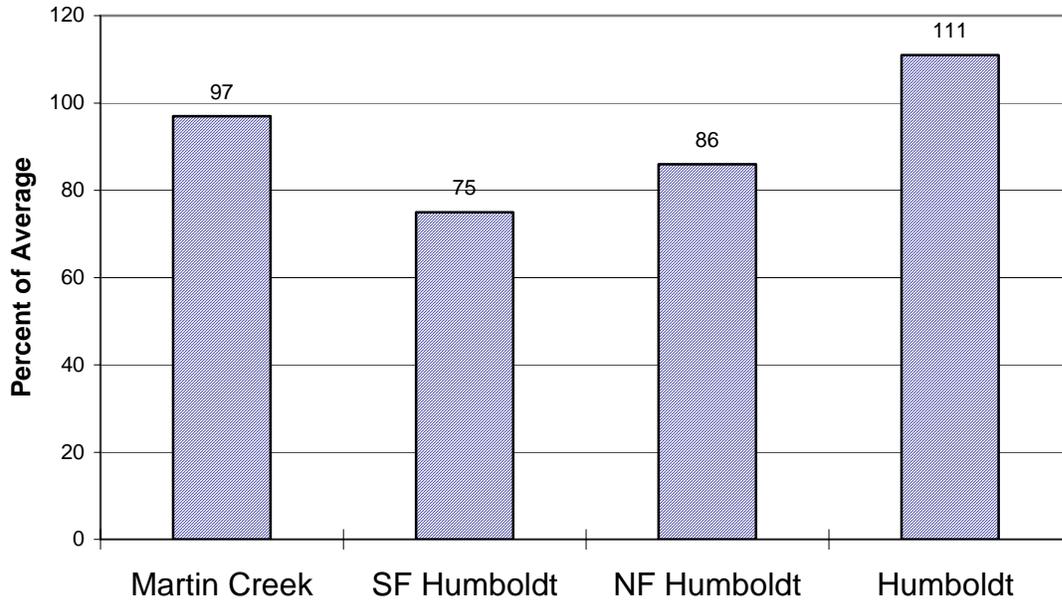
		Most Prob Vol KAF	Most Prob %Norm	Reas Max Vol KAF	Reas Min Vol KAF	30 Year Avg KAF
<hr/>						
NF Humboldt River						
Devlis Gate, at, Halleck, nr	Apr-Jul	22	65	36	6.0	34*
SF Humboldt River						
Dixie Ck, abv, Elko, nr	Apr-Jul	45	59	76	25	76
Marys River						
Hot Springs, abv, Deeth, nr	Apr-Jul	25	64	40	12.0	39
Humboldt River						
Palisade	Apr-Jul	125	50	270	50	250
Comus	Apr-Jul	110	49	250	40	225
Martin Ck						
Paradise Vly, nr	Apr-Jul	12.0	64	18.9	5.0	18.7

*30 Year Averages for 1971-2000 are incomplete. Those forecast points with an asterisk have incomplete averages, so 1961-1990 averages are listed. The new averages will be incorporated into this report when the complete data sets become available.

Humboldt River Basin

Seasonal Basin Precipitation

October 1 to Date



Basin Snowpack

% of Average SWE to Date

